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### PUSH-PULL R-F BEAM POWER AMPLIFIER

Unless otherwise specifie	d, value:	s are for both	units
Heater Coated Unipote	ntial Cat	thode▽	-
Heater Arrangement <u>Serie</u>	s   Par	allel	
Voltage † 12.6			d-c volts
Current 0.8		1.6	amp.
Transconductance, for			
plate current of 25 ma.	4000		µmhos
Grid-Screen Mu-Factor	6.5		
Direct Interelectrode Capacit	ances (ea	ach unitl:	
Grid-Plate (with external s	hielding		
Input		14	μμf
Output		8.5	μμf
Maximum Overall Length Maximum Radius			/16"
Bulb			3/16"
Caps (two)			-16 nall
Base	Lamas Ma	ان fer Octal 8-Pi	
RCA Socket	Large wa		No. 9924
† Should not deviate more than ±109	from the		. 10. 5524.
In circuits where the cathode is	not direct	Iv connected to t	the heater,
the potential difference between 100 volts.	heater and	d cathode should	not exceed
Maximum Ratings A	re Absolu	ite Values	
MAYIMIM CCC and ICAC DATINGS	HE TYPIC	AL OPERATING C	CONDITIONS
CCS = Continuous Conne- ICAS = Intermittent Con-	rcial Ser	vice	
ICAS = Intermittent Com	mercial a	ind Amateur Ser	vice
A-F POWER AMPLIFIER &	MODULATO	OR - Class AB2	#
	ccs	ICAS	
D-C Plate Voltage	400 ma		. volts
D-C Screen Voltage (Grid #2)	225 ma	x. 225 max.	. volts
MaxSig. D-C Plate Current*	150 ma	x. 150 max.	ma.
MaxSig. Plate Input*	60 ma		. watts
MaxSig. Screen Input*	4.5 ma		
Plate Dissipation*	20 ma	x. 25 max.	. watts
Typical Operation:			
D-C Plate Voltage	400	500	volts
D-C Screen Voltage**‡	125	125	volts
D-C Grid Voltage	45	4.5	
(Fixed bias, Grid #1) Peak A-F Grid-to-Grid Volt.	-15 CO	<b>-15</b>	volts
Zero-Sig. D-C Plate Current	60 20	60	vo1ts
MaxSig. D-C Plate Current	150	22 150	ma.
MaxSig. D-C Screen Current		32	ma.
Load Resistance	)2	)2	ma.
(Per plate)	1550	2000	ohms
Effective Load Resistance	1000	2000	Office
(Plate to plate)	6200	8000	ohms
MaxSig. Driving Power♦	0.36	0.36 appi	
MaxSig. Power Output	42	54 3001	rov watts
Subscript 2 indicates that grid ci cycle. Averaged over any audio-frequency Driver stage should be capable of stage with the specified driving; resistance per grid circuit of the 500 ohms and the effective impedar frequency should not exceed 700 of	urrent flow	vs during some ba	rt of input
* cycle.	**	. I: See end of	tabulation.
Driver stage should be capable of	supplying	the grids of the	e class AB2
stage with the specified driving presistance per grid circuit of the	ower at 10	w distortion. The	e effective
500 ohms and the effective impeda	nce at the	highest desired	d response
	nms.	Indicat	es a change.



### PUSH-PULL R-F REAM POWER AMPLIFIER

PUSH-PULL R-F BEA	M POWE	R AMPLI	FIER			
1	m preceding pa					
PUSH-PULL R-F POWER AME	PLIFIER - Clas	s B Telephon	<u>y</u>			
Carrier conditions per tube for us	e with a max. r	odulation fact	or of 1.0			
la a az	<u>ccs</u>	ICAS	4.			
D-C Plate Voltage	400 max.	500 max. 225 max.	volts			
D-C Screen Voltage (Grid #2)	225 max.	225 max. 75 max.	volts ma.			
D-C Plate Current	75 max. 30 max.	37.5 max.	watts			
Plate Input ► Screen Input	4.0 max.	4.0 max.	watts			
Plate Dissipation	20 max.	25 max.	watts			
Typical Operation:	20 marti					
D-C Plate Voltage	400	500	volts			
D-C Screen Voltage** I	125	125	volts			
D-C Grid Voltage (Grid #1)	<b>-</b> 25	-25	volts			
Peak R-F Grid-to-Grid Volt.	50	50	volts			
D-C Plate Current	75	75	ma.			
D-C Screen Current	4	3	ma.			
D-C Grid Current	Negligi		ma.			
Driving Power <sup>o</sup>	0.8	0.7 approx				
Power Output	10.5	13 approx	. watts			
GRID-MODULATED PUSH-PULL R-F	POWER AMP	-Class C Tel	ephony			
Carrier conditions per tube for us			or of 1.0			
la a a	<u>ccs</u>	ICAS	4.			
D-C Plate Voltage	400 max. 225 max.	500 max. 225 max.	volts   volts			
D—C Screen Voltage (Grid #2) D—C Grid Voltage (Grid #1)	-175 max.	-175 max.	volts			
D-C Plate Current	75 max.	75 max.	ma.			
Plate Input	30 max.	37.5 max.	watts			
Screen Input	4.0 max.	4.0 max.	watts			
Plate Dissipation	20 max.	25 max.	watts			
Typical Operation:						
D-C Plate Voltage	400	500	volts			
D-C Screen Voltage ‡**	125	125	volts			
D-C Grid Voltage	-40	-40	volts			
Peak R-F Grid-to-Grid Volt.	80	80	volts			
Peak A-F Grid Voltage D-C Plate Current	19 75	17 75	volts			
D-C Screen Current	3	3	ma. ma.			
D-C Grid Current	0.4	0.4 approx				
Driving Power <sup>O</sup>	0.32	0.28 approx				
Power Output	10.5	13 approx				
O At crest of audio-frequency cycle Obtained preferably from a fixed	with modulati	on factor of 1.	0.			
PLATE-MODULATED PUSH-PULL R-F	POWER AMP	- Class C Te	ephony			
Carrier conditions per tube for use			r of 1.0			
D C Diete Weiter	<u>c c s</u>	ICAS	1			
D-C Plate Voltage	325 max.	400 max.	volts			
D-C Screen Voltage (Grid #2)	225 max. -175 max.	225 max.	volts			
D-C Grid Voltage (Grid #1). D-C Plate Current	-175 max. 125 max.	-175 max. 150 max.	volts			
**, I: See end of tabulation.	IZJ IIMX.	→ Indicates a	ma. change.			
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### PUSH-PULL R-F BEAM POWER AMPLIFIER

(continued from		ing pag	e )		
	<u>ccs</u>		ICAS		
D-C Grid Current	7	max.	_ /	max.	ma.
Plate Input	40	max.		max.	watts
Screen Input		max.	4.0	max.	watts
Plate Dissipation	13.5	max.	20	max.	watts
Typical Operation:					
D-C Plate Voltage	325		400		volts
D-C Screen Voltage <sup>D</sup> ‡	165		175		volts
b-c cereen vortage +	10000		15000		ohms
D-C Grid Voltage § ⊕ {	-45		-45		volts
be dila voitage y a	11250		15000		ohms
Peak R-F Grid-to-Grid Volt.	112		116		volts
D-C Plate Current	123		150		ma.
D-C Screen Current	16		15		ma.
D-C Grid Current	4		3	approx	c. ma.
Driving Power	0.2				. watt
Power Output	30				. watts
		e modu	lated v	with to	he plate
Preferably obtained from a separat supply, or obtained from the modul	ated p	late-s	apply ti	rough	resistor
of value shown.  Obtained from grid resistor of value self-bias methods.	ue sho	wn (per	tube)	or by	partia
PUSH-PULL R-F POWER AMPLIFIER					
Key-down conditions per t	ube w	ithout	modul	ation	**
	<u>ccs</u>		ICAS		
D-C Plate Voltage	400			max.	voits
D-C Screen Voltage (Grid #2)		max.		max.	voits
D-C Grid Voltage (Grid #1)		max.		max.	volts
D-C Plate Current	150	max.	150	max.	ma.
D-C Grid Current	. 7	max.	7	max.	ma.
Plate Input		max.	75	max.	watts
Screen Input		max.		max.	watts
Plate Dissipation	20	max.	25	max.	watts
Typical Operation:					
D-C Plate Voltage	400		500		volts
D-C Screen Voltage* ‡	145		200		volts
	15000		17500		ohms
	-45		-45		volts
D—C Grid Voltage <sup>© ©</sup> {	10000		13000		ohms
l	260		265		ohms
Peak R-F Grid-to-Grid Volt.	116		112		volts
D-C Plate Current	150		150		ma.
D-C Screen Current	17		17		ma.
D-C Grid Current	4.5		3.5	approx	<. ma.  . ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Driving Power	0.23		0.18	approx	. watt
Power Output	44		56	approx	. watts
Modulation essentially negative of the audio-frequency envelope does ditions.  Obtained from a separate source, of a voltage divider, or through a The screen voltage must not excee Dobtained from fixed supply, by griful	nay be	used	if the p	ositive	peak of
the audio-frequency envelope does	not ex	ceea 1:	15 T OF T	ne carr	t name
▲ Obtained from a separate source, o	r from	the pla	te-volt	age sup	ply with
a voltage divider, or through a	series	resist	tor of t	he vali	e shown.
Obtained from fixed supply, by gri	d resis	stor (10	0000,130	00), or	cathode
resistor (260, 265).	d 001/		1 15000 -	hmc (*-	+ - 1 \
The grid-circuit resistance shoul tube, or 30000 ohms per unit. An supplied by a cathode resistor or	y addi	tional	bias r	equired	must be
supplied by a cathode resistor or	a fixe	d supp	ly i	ndicates	a change



### PUSH-PULL R-F BEAM POWER AMPLIFIER

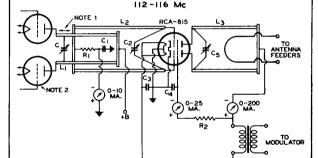
(continued from preceding page)

- Preferably obtained from a separate source, or from the plate-voltage supply with a voltage divider. In applications requiring the use of screen voltages above 135 volts, provision should be made for the adjustment of control-grid bias for each unit separately. The necessity for this adjustment at the lower screen voltages depends on the distortion requirements and on whether the plate-dissipation rating is exceeded at zero-signal plate current.

Data on operating frequencies for the 815 are given on the sheet TRANS, TUBE RATINGS vs FREQUENCY.

Shielding and by-passing considerations for the 815 are similar to those given under Type 832-A.

### ULTRA-HIGH-FREQUENCY PLATE-MODULATED PUSH-PULL R-F POWER AMPLIFIER



6.3 V.

- See L 1" x 1½" copper sheet in-sulated from chassis by mica sheet 0.002" thick, or 0.0005-µ1 "postage stamp" mica condensers soldered to chassis with č, c, č, shortest practicable
- snortest practicate leads.
  Copper discs, 1/16\* x 1½\*.
  Solder discs to 10-32 brass screws 1\* long. Drill and tap grid and plate lines for 10-32 screws. C2 C5
- R<sub>1</sub> 15000 ohms, 0.5 watt 15000 ohms. 25 watts, adjustable.
- able. \$" dia. copper tubing. Length of tubing and capacitance of C depend upon driver tubes
- ½" dia. copper tubing, 12½" long and spaced approx. 7/8" between centers. ½" dia. L<sub>3</sub>
- long and spaced approx. 7/8\* between centers.

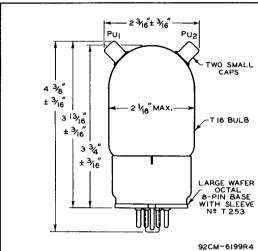
- (1) The r-f driver stage should be able to deliver about one watt of useful r-f power, in order to insure ample grid excitation for the 815.
  (2) Adjust coupling between L, and L, and tuning of C and C2 for recommended d-c grid current of the 2615.
  (3) L, and L, should be effectively shielded from L, by a metal chassis, or by a vertical metal baffle plate used to mount the 816.
  (4) Adjust coupling of hairpin antenna coil to L, so that the ampliation of the coupling of the co

The license extended to the purchaser of tubes appears in the License Motice accompanying them. Information contained herein is furnished Motice accompanying them. Infor without assuming any obligations.

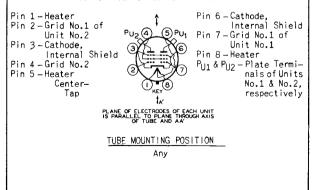
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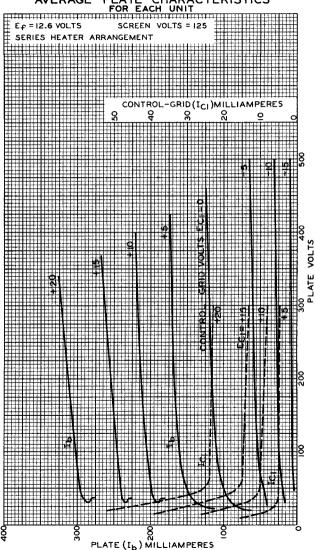


### BOTTOM VIEW OF SOCKET CONNECTIONS





### AVERAGE PLATE CHARACTERISTICS



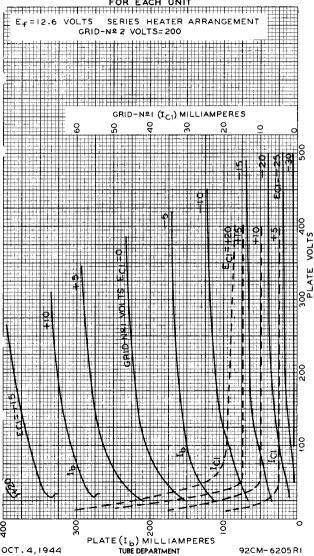
SEPT. 17, 1943

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA HARRISON, NEW JERSEY

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## AVERAGE PLATE CHARACTERISTICS





### PUSH-PULL R-F BEAM POWER AMPLIFIER

